

A Guide to Organic Gardening: Kentucky Garden Edition



by
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Introduction

Welcome to the world of organic gardening. Your adventure is sure to be a fulfilling one teeming with experimentation and unexpected delights. Gardens are a wonderful place filled with creativity, science, growth, and fun! Your garden can be anything you'd like it to be, where you are the lord over all! This paper will discuss all the basic information to ensure success for your organic garden.

Organic gardening is gardening with nature. Not until the manufacture of fertilizers, herbicides, and pesticides had anyone coined the term 'organic gardening'. Simply using the resources nature provides to encourage the growth and production of your plants is all there has been for hundreds of years, and all there is to organic gardening. Choosing to grow your plants naturally is such a simple decision, but one that has far reaching effects. Increasing your vegetable's nutritional value and taste, eliminating the risk of pollution or toxic danger to you and your family, and increasing the economic gain of your garden are just some of the benefits to growing without chemicals.

Throughout this booklet we aim to make gardening the natural way as accessible as possible. We will discuss the importance of soil and how to encourage its health, the application of fertilizers and their benefits, common pests you may encounter and the control measures that can be applied, common weeds, and some tips for a successful growing season. A list of resources is also included to expand upon topics covered in this booklet, and also includes topics beneficial to the organic gardener.

Please use this booklet to your benefit, and enjoy the fruits of your labor.

Anna Sommers and Jonathan Passow



Soil

Good soil is the gardeners' key to success! Preparing your soil before you introduce your plants is of the utmost importance. Your soil literally lays the groundwork for how well your garden does throughout the year. It deserves your first consideration since it influences your plant's growth, health, and yield. Basically, the golden rule with organic gardening is that if you treat you soil well it will treat your plants well.

All soil is basically a mixture of sand, clay, and organic matter. These components, in the right ratio and prepared in the right way, are the foundation for any productive garden. Ideal soil for plant growth has a fine texture, loose structure, ample moisture, and high organic matter content. A fine texture and loose structure allows your plants roots to move with ease through the soil as they grow, and allow them to absorb oxygen and carbon dioxide from the air between the soil particles. A soil's ability to absorb water is critical to your plants health. The soil must both be able to hold enough moisture for your plants to make use of, while also allowing excess water to drain so as not to drown your plants. Texture, structure, and moisture retention can all be improved with the addition of organic matter to your soil.

Organic matter is the most important component within the soil. Soil organic matter refers to the decomposing remains of plants and animals, such as compost. Organic matter is important because it attracts and holds important plant nutrients in the soil. It is critical for soil structure because it provides the 'glue' that holds individual particles of minerals together. For soil with less than ideal texture and structure, add organic matter, such as compost, for improvement. The best sources of organic matter are compost, chopped leaves, seaweed, and aged cow, horse or chicken manure.

The best time to work your soil is obviously in the spring before you have planted any seeds or transplants. You may be eager to jump right in to work once the last snow has melted. This is a big mistake. When the earth is still saturated with melting snow or spring rain it is easily compacted just by walking across it. In addition, large clumps of wet soil turned over at this time will only bake into impervious clods which will be very difficult to break up later. Plant roots grow best where there are some air spaces between soil particles. About half of the volume of a good soil is pore spaces (the area between particles where air and water penetrate). Heavy wet soil doesn't break up into the loose, air-retaining texture that is the best for plants.

When you feel it is about time to start working your soil, pick up about a half cup of soil in your hand. Squeeze the soil together so it forms a ball. If the ball of soil can be readily shattered by pressing with your fingers or by dropping it from a height of about three feet it is dry enough to work. So let us begin!

To start, you will want about 3 forty pound bags of composted manure (or other organic matter) per 5x5 foot area of your garden. Open the bags and spread evenly with a firm rake. You will want to work this into your soil in some manner. Tilling is widely believed to be the best way to do this. You can till by hand with a broad fork or a D-Handle fork (commonly referred to as a pitch-fork). Tilling can also be done by a gas powered rotary tiller. However your manner of tilling, it is a good idea to till in both directions (north-south and east-west). The idea with tilling is twofold. First, tilling works amendments (compost, organic matter, etc.) into all the layers of your soil. Second, tilling breaks up your soil creating more pore space. The deeper you dig when

tilling the more aerated soil your plants roots have to grow in. Though, the basic idea is to at least loosen the soil to a depth of 8-10 inches. Keeping in mind that the top four inches of your soil is where the most plant root growth is concentrated. If just this area is loosened for your plants to grow, you will be well on your way to a happy garden. When dealing with root crops such as carrots, loosening your soil a little deeper will be helpful.

If your soil seems particularly dense you can till your soil once before you lay down your amendments. This makes your job easier when working the organic matter into your soil. You can also add sphagnum moss to your soil to increase its aeration and moisture retention. One bale of sphagnum moss per 10X20 foot area is adequate.

Tilling in organic matter is the basic first step to preparing your garden bed. There are many different types of amendments that can be made to your soil for any numerous reasons. There are also many theories about soil preparation and how that should be done. All these amendments, reasons, and theories are as varied as the gardens they are practiced in. One of the joys of gardening is that you can do it any way you like. The garden is your oyster (so to speak). As long as your soil is aerated and has plenty of organic matter, your soil will support a healthy garden.

Now that your bed has been prepared, you may wish to wait a day or two before planting, especially before planting very small seeds. Letting the soil settle a little will minimize the risk that your seeds will be washed away should it rain. After waiting the required day or two, begin planting your seeds and transplants. Your soil is primed for their arrival.

Though preparing your soil is the most important thing your can do for your plants, maintaining your soil throughout the year, through the use of mulch, is one of the most important things your can do for your garden. Mulches are an essential part of organic gardening; for mulch does much to preserve the organic matter you've lovingly added and protect the soil's structure from compaction. The benefits of mulching are vast. I will cover some here, but you may be delighted to find many more once you begin to experiment in your own garden. Mulches keep soils evenly moist diminishing your need to water; smothers weeds diminishing your need to remove them; keeps soil soft so that weeds are easier to pull out; shades soil which reduces temperature variation in the soil causing stress to a plants roots; reduces wind and water erosion; keeps vegetables clean; and minimizes stress for new transplants. If you choose an natural mulch (such as straw) the mulch then actually adds organic matter to the soil through its own decomposition, feeds and encourages earthworm activity, slowly adds nutrients to the soil, and increases retention and availability of nutrients for your plants. Mulching is one of the easiest ways to add organic matter to your garden throughout the year, while greatly reducing the necessity of your two main garden chores: weeding and watering.

There are many different types of mulch to choose from. The first decision to be made is: to be natural or not to be? We have our personal preferences lying with natural; however man-made options can be very helpful and effective. Good man-made choices are black paper and landscaping fabric. These allow rain penetration while suppressing weed growth. If you choose natural, you have a few more options: cocoa hulls, coffee grounds, compost, corn cobs and stalks, fabric paper, grass clippings, straw, hay, hops, leaves, paper, peanut hulls, brown pine needles, and seaweed. This is a limited list of the top used mulches throughout the United States,

but your choice will undoubtedly be swayed by cost, availability, and practicality. The main idea is to cover your soil!

Just as in bed preparation, you do not want to cover your soil too early. Once your young plants are fully established and growing strongly you may apply mulches to your beds. Until this time, hand weeding is the best method of weed control (taking care to be gentle so not to disturb your vegetable plants' growth). Mulch should not be applied directly to dry soil. If your soil is dry, thoroughly water before application. This is to ensure that your mulch will immediately begin to maintain the moisture content of your soil. Your mulches should also not be placed too closely to your plants. This discourages fungal attacks due to the humidity increase, and in some cases the mulches can actually damage your plants. A safe distance of about a few inches or so should be good enough to minimize these concerns. There is one consideration you should be mindful of when making use of mulches in your garden, however. Snails, slugs, and pill bugs love mulch as much as your plants will. Extra care and attention to these pests should be made when mulches are used.

A well prepared and mulched garden will practically grow itself. You can grow almost any plant in almost any soil if you have enriched it with enough organic matter, pour enough water on it during the growing season, and protect it with mulch. These are the essentials of organic gardening. Once your bed has been prepared, you need not till it again. To maintain the ever so essential pore space in your soil, simply minimize how much you walk on your growing bed. If you choose to change where you grow to an area you've walked on a lot, simply till that area again. Much of the work in a garden is done in the spring with bed preparation, planting, and young plant maintenance. Once your plants are established and mulches applied, there is little to be done outside of occasional watering, weeding and pest control. However, to ensure happy and healthy soil for years to come little more is required. Replacing the nutrients to your soil that your plants have used or building more organic matter into your soil will guarantee healthy and bountiful plants. A discussion of these topics will be covered in the next section: Fertilizers.



(Anna evenly spreads the compost before tilling)

Fertilizers

While all of your plants will appreciate the soil, water, sunlight, and love that you have given them, they will need an extra boost of nutrients from time to time. Think of this as giving multi-vitamins to your plants so they'll grow up big and strong. The main thing to remember when selecting fertilizers is to keep it natural and organic (so put down that bottle of Miracle Grow....thought we didn't see you did you).

There are a plethora of choices for fertilizers, all with different N-P-K percentages and different applications. Before we go into the list of fertilizers we suggest, let's first explain some fertilizer basics. The N-P-K rating on fertilizers is a very important key as to what they will do. The N-P-K shows the percentage of Nitrogen (N), Phosphorus (P), and Potassium (K) found in a particular fertilizer. Each nutrient fills a specific need for the plant. Not to get too far deep into the subject, but generally they are as follows:

- **Nitrogen** provides the majority of the oomf needed for plants to grow (vegetative growth)
- **Phosphorus** also helps with vegetative growth but is a main component with flowering, root growth, and disease resistance
- **Potassium** helps with fruit growth, disease resistance, weathering extreme heat and cold, and regulates the synthesis of proteins and starches

So, a fertilizer with a rating of 6-4-4 will generally be for vegetative growth, 2-8-4 will be for flowering, and 0.1-0.3-0.7 will be for flowering and fruiting. Keep in mind that each plant has its own nutritional needs. Peppers for example, are sensitive to excessive nitrogen while tomatoes will require additional nitrogen.

The application of fertilizers varies greatly. Liquid fertilizer can be mixed with water and sprinkled over the soil (best done when the plants are thirsty), or sprayed on the underside of the leaves. Manure and compost can be spread over a large area or limited to a small circle around the base of the plants (called side dressing) and worked into the soil with a 3 pronged hand rake. Base your fertilizing schedule both on the individual plant's needs and the directions of the fertilizer used. Below are some common fertilizers that we recommend. Regardless of what fertilizer or compost you use, we recommend treating your soil at least 2-3 times a season.

-Fish Emulsion. While slightly off putting in smell and concept, fish emulsion, which is basically liquefied fish parts and oils, is a fantastic organic fertilizer. High in nitrogen (generally containing an NPK of 5-2-2) and micronutrients, fish emulsion is a fast fix for nitrogen starved tomatoes and other plants.

-Moo-Nure. Brand Organic Compost with Cow Manure

Straight manure is generally too hot for use in gardens, that's why we recommend composted manure. This will help give depleted soils a boost of nutrients in additions to helping soil retain moisture.

-Botanicare Liquid Nutrients. We highly recommend Botanicare's products which are naturally created, and organically based hydroponic/soil fertilizers. For vegetative growth we recommend the Pure Blend Grow (3-2-4), and for flowering we recommend both Pure Blend Pro Bloom (2-3-5) and Pure Blend Pro Soil (1-4-5).

-FoxFarm Grow Big and Big Bloom. FoxFarm's liquid fertilizers are natural and organic. Use the Grow Big (6-4-4) for vegetative growth and Big Bloom (0.1-0.3-0.7) for flower and fruit set.

-FoxFarm Soil. For container gardens and for seed starting, we like to mix FoxFarm's Happy Frog and FoxFarm's Ocean Forest. Both are organic, natural, and contain high mycorrhizal fungi which benefit root growth. Our philosophy for starting seeds is to give them the best soil right from the start and you'll get happier, stronger, and healthier plants. FoxFarm soils, while a bit pricey, are the best soil around. In addition to using it for containers, you can also use it as a side dressing to fertilize plants, or mix it into your soil at the start of the season for an even healthier bed.

-Epsom Salt. Not just for baths, Epsom salt can be a very important tool for gardening. When used in the garden, it's a great source of magnesium and sulfate, both of which help in photosynthesis and aid in the uptake of other nutrients such as nitrogen. It also helps with flower formation. Both tomatoes and peppers usually suffer from magnesium deficiencies. For more information regarding specific Epsom salt treatments for your plants, please refer to our Reference section.

-Eggshells. This one is a classic gardening "secret". Eggshells are high in calcium which has a wide benefit to plants. Place about 13 eggs worth (wash them out before planting) of crushed shells in a hole and plant your eggplants, tomatoes, and peppers over them. Blossom end rot (a common problem for these species) is combatted by calcium. Also, it helps with water regulation in tomatoes preventing the fruit from splitting after a heavy rain or watering.

-Coffee Grounds. Know of a coffee drinker? Have them save their coffee grounds for you. A side dressing of coffee grounds gives plants a boost of nitrogen (and a slight caffeine buzz).

-Compost Tea. This is not your grandmother's tea. Unless she was an organic gardener, that is. Compost tea is made when you dissolve some compost into water and let it sit for a few days (or even longer). Liquefying your compost allows you to water with your compost, thereby alleviating your plants thirst while also quenching their hunger as well! So next time you hear 'Feed me Seymour!' coming from your garden beds, you'll be prepared with a freshly brewed batch of soothing compost tea.

Pests

In this sections we will examine some of the common predators you will encounter during your time gardening. Following each description are suggestions of how to treat that specific pest. For explanations of each treatment, please refer to the Organic Pest Control section.



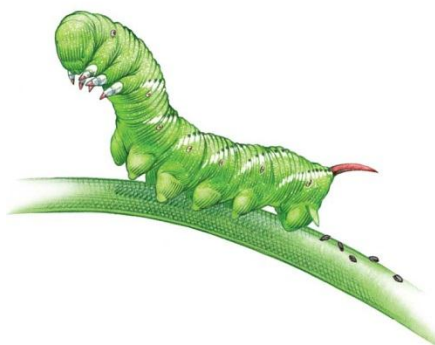
(Left: Wingless Adults, Right: Winged Adult)

-Aphids. These small, sap-sucking, virus spreading, destructive insects are the bane of gardeners around the world. They set up camp mostly on the underside of new leaves, then, forming small colonies, spread out from there. Aphids will range in color and often take on the hue of the plant they have invaded. Most popularly you will find them as a green color, but they will range to grey and even black. Like most sucking insects, aphid colonies will feed on the sap of the plant, effecting its growth and impeding its ability to form proper leaves.

Catch these pests early and eradication is fairly simple, catch them late and it gets even tougher. Aphids are known for their adaptability. While one generation may be easily effected by a pesticide, the next generation will quickly build immunity to it.

Plants Effected: Peppers, Huckleberry, Lettuce, Carrots, Kale, Broccoli, Brussels Sprouts

Treatment: Neem Oil Spray, Ladybugs, Lacewings



-Hornworms. While there are many types of hornworm, the two most common species you will encounter are the Tomato Hornworm and the Tobacco Hornworm (which are almost identical in appearance). While the end adult stage is a pretty looking moth, the larval stage is where you need to worry. Just like the title character in the famed children's book, "The Very Hungry Caterpillar", this insect will just keep on eating. Hornworms will eat leaves, branches, and fruit right off your plants.

Besides plant damage, another sign that you have a hornworm problem is by spotting their black droppings on leaves or the ground. Hornworms are hard to spot at times due to their green color but if you look hard enough they can usually be found clinging to the underside of branches.

Plants Affected: Peppers, Tobacco, Tomato, Broccoli, Brussels Sprouts

Treatment: Relocation, Parasitic Wasps, Lacewing larvae attack hornworm eggs.



(Left: Bad Slug, Right: Good Slug)

-Slugs. Slugs come in various sizes and color but most will do damage to your crops (save for the leopard slug). Often enough, the most tender, newest leaves will be attacked first. Slugs are mostly nocturnal feeders, so if you want to pick them out of your garden or spot them, go hunting at night.

Plants Affected: Lettuce and greens, plant sprouts, Pak Choi

Treatment: Eggshells, copper tape, diatomaceous earth, beer traps.



-Woodlouse (aka Pill Bugs, Potato bugs, Roly-poly). Woodlouse, while beneficial to compost piles, can be a pest for your garden. They feed upon tender fruit that grown on the ground such as strawberries, and tubers such as carrots, beets, radishes, and horseradish. If you notice that your veggies have developed cave like holes, then you might have a woodlouse issue.

Plants Affected: Potato, Beet, Radish, Carrot, Horseradish, Parsnip

Treatment: Diatomaceous earth, corn flour traps



(Left: Flea Beetle, Right: Flea Beetle Damage)

-Flea Beetles. Just like their name implies, flea beetles jump. But they also walk and fly. If your leaves look like someone took buckshot to them, then you've got a case of flea beetles. The shiny, black, beetles chew holes through leaves, impeding the plants ability to convert sunlight into energy and affect its ability to grown and produce fruit.

Flea beetles can be found on the ground (where they lay their eggs), and on both sides of leaves. Once established, they are hard to eradicate.

Plants Effected: Eggplant, Pak Choi

Treatment: Neem Oil, covering plants, soil cover, soil spraying of Neem oil



(Left: Cucumber Beatle Eggs, Right: Stripped Cucumber Beetle)

-Cucumber Beatles. Cucumber Beatles come in two common varieties, stripped and spotted. The spotted variety actually looks similar to ladybugs. These insects are considered sucking invaders as feed off of tender new growth and flower buds. Like their name implies, these insects primarily attack cucumbers but will also affect squashes, melons, and gourds. Look for the adults on the leaves and flowers while their eggs can be found in clusters reminiscent of ladybug eggs on the underside of the leaves. The larvae burrow into the roots of the plant. What also makes these insects so dangerous is that they carry two very damaging diseases: bacterial wilt and cucumber mosaic virus.

Plants Effected: Cucumbers, Melons, Squash, Gourds

Treatment: Neem oil, covering plants, ground cover



-White Powdery Mildew. This fungus infection is common amongst gourds and squashes. Symptoms match the name of the fungi quite well as they start with small patches of white on stems, leaves and eventually spread, covering the entire plant in a white powder. While this fungus is common place, prevention and treatment are quite easy. White Powdery Mildew crops up in moist, stagnant environments, so keep your plants properly spaced apart and where they will receive a nice breeze. If your plants are stricken with this fungus, a spraying of Neem will usually take care of the problem in one treatment.

Plants Effected: Cucumbers, Melons, Squash, Gourd, Grains, Grapes, Onions, Strawberries

Treatment: Neem oil

Organic Pest Control

Pests. They're everywhere. But don't be angry at the little hornworm that has just taken a big chunk out of your prize winning tomato, it's just doing what nature has programmed it to do. When gardening organically, we wish to take advantage of nature, rather than discourage it. Amplifying nature's benefits, while minimizing its aggravations is what organic gardening is all about. For every 'problem' nature throws your way, she provides many solutions. Below are some great solutions to your everyday pest problems. For information regarding where to purchase some of these pest control items, please refer to the resources section of this paper.

-Neem Oil. Neem oil is a vegetable oil pressed from the fruits and seeds of the Neem Tree. Its use in organic gardening and homeopathy has long been documented. This is one of our favorite pest controls as it drives away harmful insects while generally leaving beneficial insects alone.

Directions: Mix 1 and 1/4 tsp of Neem oil per 1 quart of warm water into a medium sized spray bottle. Shake vigorously and then spray liberally. Spray 1-2 times a week until pest problem is under control. Neem oil forms into a solid fairly quickly at cooler temperature, but have no fear, the Neem is fine. Just place the container in warm water and in a few minutes, the Neem will return to its fluid nature.

-Diatomaceous Earth. D.E. is comprised of fossilized diatoms (a type of hard shelled algae) and is fantastic for getting rid of some nocturnal ground feeders. D.E. attacks on two fronts. It's fine, rough texture cuts the soft tissue of insects traveling across it, making them more susceptible to death. It also retains moisture very well, literally wicking away moisture from the skin, which also makes the effected insect more susceptible to death.

Directions: Spread a fine line around the base of the plants that are being attacked, making sure not to get the powder on the plant itself. Caution: The fine cutting action of DE is also very effective on sensitive human tissues, such as your eyes and lungs. Please use caution when handling this otherwise benign powder.

-Corn Flour Traps. Now this is a fun little trick and is similar to the "roach motel" line of pest control. The basic idea: using a small container with holes cut in the side to allow insects to come in and out. The inside of the container has corn flour as bait. Once ingested, the corn flour expands when it comes into contact with moisture, and kills the insect.

Directions: Place traps near effected plants, replace corn flour as needed.



(Left: Parasitic Wasp, Right Parasitic Wasp Eggs)

-Parasitic Wasps. Smaller than their famous brethren, and harmless to humans, parasitic wasps are of great benefit to the garden. They lay their white eggs on the backs of many harmful insects in the garden (such as hornworms). Once the larvae hatch, they feed on their host.

Directions: Release into garden



(Left: Ladybug Eggs and Larvae, Right: Ladybugs Eating Aphids)

-Ladybugs. Ladybugs are one of the best beneficial insect to keep around. In their one year lifespan, ladybugs can eat over 5,000 soft bodied pests (including those pesky aphids). With any luck, they'll permanently set up shop in your garden and be there year after year.

Directions: Leave the ladybugs in the refrigerator to slow them down a bit and then release them at dusk. Spray the ground around the plants that you want them attracted to with a sugar water solution (or leave some small bowls with sugar water out) every day for the first week. A lot of the ladybugs will fly away, but don't worry, the ones that stay will make quick work of your invading pests.



(Left: Lacewing Eggs, Right: Adult Lacewing)

-Lacewings. Lacewing larvae are known as aphid lions. Once the lacewing eggs, which are connected to plant leaves by a thin filament, hatch, the larvae seek out prey, paralyze, and then consume them.

Directions: Release into garden at dusk.

-Eggshells. The principle of eggshells works similarly to Diatomaceous Earth. Finely crushed eggshells are sharp enough that soft bodied insects will cut themselves up traveling over them.

Directions: Finely crush, but do not powder, the cleaned eggshells. Sprinkle them around the perimeter of the effected plants.

-Copper Tape. A very popular slug control devise is simple copper tape. Copper tape holds a small electrical charge and when a slug comes in contact with it, that charge is released giving the slug a little zap, making them think twice about coming into your garden. This can be purchased at your local hardware or garden store.

Directions: Place around the perimeter of effected plants. If you have raised beds, place it around the whole of your garden for extra protection.

-Beer Traps. Slugs got you down? Well, buy them a round! Slugs are attracted to beer (particularly the yeast in beer) and will happily pass up a chance to munch on your tasty greens for a pint of liquid bread, and eventually will drown on the liquid.

Directions: Place a few small dishes or plates out in the garden at dusk and pour in some beer. It doesn't take much of the fizzy yellow stuff so you'll get the joy of sitting in your garden drinking the rest of that bottle.

-Plant Cover. Covering plants, usually with polyethylene monofilament cloth, allows sunlight and wind to reach the plant but keeps insects out. Plants are usually covered until they are strong/big enough to resist attack from invaders. This cloth can usually be purchased at your local hardware or garden store.

Directions: Cover plants until they are strong enough.

Weeds

Do you know what the definition of a weed is? It's any plant that you don't want in your garden. Simple isn't it? While some plants are beneficial to a garden (such as Purslane and Wood Sorrel), others you will want to get rid of as fast as possible. For this section we will examine some of the basic and common invasive weeds that you will encounter in the garden. There are many more wild and wooly plants that you will encounter in your garden, however this listing is of the most pernicious and harmful to your growing plants. Keep in mind, with all of these weeds, you do not want to compost any of them for fear of them spreading.



-Grass. Great for front lawns but not for gardens. Grass will spread quickly and compete for root space from your plants. When removing grass, be sure to get all of the roots out of the garden as well for grass can reappear just from the root alone. The worst of the grasses is called Quack or Crab Grass (pictured above). This grass is especially detrimental to your garden beds because of its underground runners. These, even when the green plant material is removed, will sprout new growth and continue to spread.



-Bindweed. Also known as a member of the Morning Glory family, bindweed grows fast and strangles whatever plant it grows up. Though it does have beautiful flowers, and you may think twice about removing this lovely plant from your garden, we advise against allowing it to grow.

The only real control for bindweed is to pull it as soon as it appears and to keep pulling it. Pull them as soon as they appear because their roots can quickly sink to a depth of 9 feet.



-Mugwort. This is one of the main weeds you will be fighting with at Kentucky Garden, and it's going to be a demanding fight. Mugwort, if left to its own devices, would probably take over the world. Unless it's a new sprout, dig up, do not pull, this weed because it will live on if any root is left in the soil. Only through careful eradication and persistence of pulling will you be able to fully eradicate this pernicious weed. While we are harsh and swift when it comes to this plant, we can't overlook the fact that it has a long, beneficial history! The Romans used it in their sandals to help with stamina on long patrols. It was used in beer brewing up until the introduction of hops. It's an important part of Asian medicine and is still used to this day to season roasted Christmas goose in Germany. This is the perfect example of the definition of a "weed".

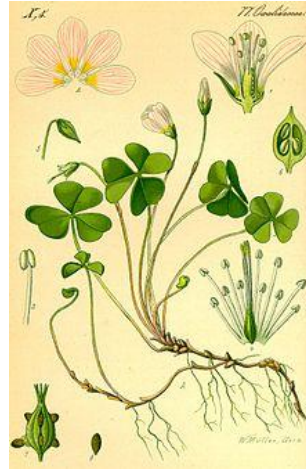


-Thistle. Those prickly leafed invasive weed, are notoriously hard (and painful) to eliminate from the garden. The plant survives off of an extensive root system that will go quite far down into the soil. On top of that, a new plant can appear off of even the smallest root piece left behind. Besides pulling every part of the plant off (or hiring a herd of goats), you can cut off the plant at the base. Check the location weekly, cutting off any new growth. The theory behind this

method is that you will quickly use up the plants energy reserves faster than it can replenish them, eventually killing it.

Beneficial Weeds

There are many beneficial weeds, just as there are many pernicious ones. I would just like to briefly touch on three plants that can be considered weeds in gardens (especially Kentucky Gardens) but in fact are great to have around.



-Wood Sorrel. Not only is this clover look-a-like a great ground-cover for the garden (preventing other weeds from growing), it both tastes fantastic and is has many health benefits! It contains Vitamin C and B-complex, helps reduce fevers, and to quench thirst. The spicy leaves make a great accent to salads too!



-Purslane. This annual succulent makes a wonderful ground cover. This ‘weed’ tastes great right out of the ground, on salads, or even cooked (at which point its taste resembles spinach). The great thing about Purslane is its contents of Omega-3 fatty acids. These compounds aid with decreasing bad cholesterol and are essential for brain function. Purslane contains more Omega-3 than any other vegetable! It also contains Vitamin A, B, C, magnesium, calcium, potassium, and iron and is used in Tradition Chinese Medicine.

It is best to pick this delicious and healthy plant when it is younger, as smaller plants are tastier and retain more vitamins. Be sure not to confuse Purslane with another plant that is dangerous to eat. This 'look-alike' is easy to discern from Purslane because it exudes a milky white sap when ripped. Please be sure which plants you have growing before you decide to eat them.



-Tomatillo. This one is an exclusive weed to Kentucky Gardens. When prepping your bed you'll end up pulling up a lot of these, but consider transplanting one or two to a section where you wish to grow it. This plant is an edible cousin of the Chinese Lantern. It can grow up to two feet tall and about two feet across. Tomatillos grow their fruits inside of a papery husk and are ready to be harvested once the husk splits. Tomatillos taste fantastic in various cooking applications and are a staple in Mexican cuisine. Try making a salsa verde, a green hot sauce, or cooked in an enchilada.

Getting Started Off Right!

Starting a vegetable garden is exciting, but can also be rather intimidating as well. Every gardener dreams of a plentiful harvest, but it is hard to know how to manage your garden throughout the year to ensure a fruitful return. The following are just a few basic principles to keep in mind.

- Plan for success. Most people think all gardening happens in the summer. Little know how important the winter is for successful gardeners. This is the time to plan! Before the ground thaws and you begin purchasing your seeds or transplants, come up with a plan for your garden. The best way to do this is by drawing a diagram and mapping out where you wish to plant which plants. Taking into account the final size of your plants and the space requirements around your plants, mapping in this fashion allows you to make the best use of your land and resources.

-Keep it simple and small. When you're beginning, it's easy to get overly enthusiastic. Don't try to grow everything! Just plant a few easy-to-grow crops. Carefully managed, even a small plot will produce quite a lot of food and will leave you enough time to learn about and enjoy caring for a garden. For beginning gardeners, the following are good plants to start with: bush beans, peas, leaf lettuce, onions, zucchini, swiss chard, radishes, beets, peppers, tomatoes, garlic (to plant in October) and any variety of herbs. When planting peas and leaf lettuce, be mindful that slugs enjoy these plants too!

- Know your climate. Having a basic understanding of your growing conditions will allow you to pick the right plants for your region, and your specific garden bed. Sun exposure, rainfall, and growing season are all factors to consider when choosing your crops. Northern Ohio generally has a growing season (from frost to frost) of 110 days. The last frost is usually around May 18th and the first frost falls around October 5th. Cleveland generally receives around 3.5 inches of rain for each month of the growing season. All of these factors will help narrow your crop choices.

-Visit your garden frequently. Pull weeds as soon as you see them, add mulch where it is thin, water plants that are dry, look for signs of pests and disease, and check for produce that's ready to harvest. Vigilance and diligence ensures that problems don't get out of hand, and your plants receive all they need. Once your plants are fully established, visiting every other day or so should be fine. During this time, plan to spend at least 5 hours in the garden each week.

-Compost. Once you've used compost, you'll realize there's not a thing as too much. Re-using your garden and kitchen waste to help feed your soil and plants is the most economical decision you can make for your garden. From adding organic matter to your soil, to fertilizing your plants, compost is an important part of organic gardening success.

- Water Frequently. Make sure you water at least 1 inch of water per week. The soil should remain moist without staying completely saturated, or completely dried out. Make sure to monitor your plants to adjust your watering throughout the summer. It's best to water in the morning to avoid damaging your plants or spreading disease.

- **Start a garden journal.** Take notes to record spring weather, what and when you planted and transplanted, when certain pests emerged, and how much you harvested. The more information you can obtain will only help your future gardens to thrive.

-**Respect your garden.** A great frame of mind for the beginning gardener is to treat his or her garden like a pet. Your plants need your attention, water, food, and pest control just as your furry friends do. Your garden will thrive under your attention, but will wither away without it. Another way to look at your garden is by viewing yourself as a temporary steward. You are caring for this piece of land just as the gardeners before have. You have benefited from their care, just as those gardeners after you will benefit from yours. A garden is a great place to develop useful skills, new relationships, and stronger connection with nature.

-**Grow what you can't purchase.** Concentrate on crops that you can't find at your local market or ones that offer unusual color or taste. These can be fun to experiment with and you may end up liking them more than the store-bought options!

-**Use Mulch.** To control weeds and retain soil moisture, cover garden beds with a thick layer of organic mulch. This ensures you can spend more time enjoying your garden, and less time attending to chores.

-**Plant crops you adore.** If you love lettuce or peppers, grow several varieties. Try to avoid growing the same selections as your neighbors or those you can buy.

-**Try crops your neighbors have luck with.** It helps to know what crops are easy to grow in your area. Ask your neighbors, along with experts at garden centers, garden clubs, or the local extension service. At Kentucky Garden, there are a few crops that most gardeners have had difficulty with: cucumber and eggplant for example. The plants listed earlier in this chapter are ones Kentucky Gardeners have had much success with.

- **Be brave.** Experimentation is one of the most enjoyable aspects of having a garden. Try growing something you've never eaten before. Or a plant you've never grown before. You will be amazed at how much fun it is to try something new!

-**Remember to have fun!** Involve your family and friends. Take pictures of the process to show how far you and your garden have come. And don't forget to be creative!



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Soil

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